

I claim:

1. An antibody that specifically binds to a nuclear matrix protein or an antigen thereof, wherein said  
5 nuclear matrix protein is present in cancerous bladder cells but absent in normal bladder cells, wherein the nuclear matrix protein is selected from the group consisting of:

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- 10 (a) BLCA-1 having a molecular weight of about 72 kD and a pI of about 7.70,  
(b) BLCA-2 having a molecular weight of about 40 kD and a pI of about 7.50,  
(c) BLCA-3 having a molecular weight of about 39 kD and a pI of about 6.27,  
15 (d) BLCA-4 having a molecular weight of about 37 kD and a pI of about 6.24,  
(e) BLCA-5 having a molecular weight of about 29 kD and a pI of about 5.80, and  
20 (f) BLCA-6 having a molecular weight of about 22 kD and a pI of about 8.00.

2. An antibody of claim 1, wherein the protein is BLCA-1 having a molecular weight of 72 kD and a pI of 7.70.

25 3. An antibody of claim 1, wherein the protein is BLCA-2 having a molecular weight of 40 kD and a pI of 7.50.

30 4. An antibody of claim 1, wherein the protein is BLCA-3 having a molecular weight of 39 kD and a pI of 6.27.

5. An antibody of claim 1, wherein the protein is BLCA-4 having a molecular weight of 37 kD and a pI of 6.24.

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6. An antibody of claim 1, wherein the protein is BLCA-5 having a molecular weight of 29 kD and a pI of 5.80.

10 7. An antibody of claim 1, wherein the protein is BLCA-6 having a molecular weight of 22 kD and a pI of 8.00.

15 8. An antibody of claim 2, wherein the protein comprises the amino acid sequence of SEQ ID NO:1.

9. An antibody of claim 3, wherein the protein comprises the amino acid sequences of SEQ ID NO:2 and SEQ ID NO:3.

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10. An antibody of claim 4, wherein the protein comprises the amino acid sequence of SEQ ID NO:4.

25 11. An antibody of claim 1, wherein the antibody is a monoclonal antibody.

30 12. An antibody that specifically binds to a nuclear matrix protein or an antigen thereof, wherein said nuclear matrix protein is present in cancerous bladder cells but absent in normal bladder cells and is not elevated in subjects afflicted with cystitis.

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13. The antibody of claim 12, wherein the nuclear matrix protein is BLCA-4 having a molecular weight of about 37 kD and a pI of about 6.24.

5 14. The antibody of claim 13, wherein the antibody is directed against a peptide having the amino acid sequence of SEQ ID NO: 2.

10 15. The antibody of claim 14, wherein the antibody is a monoclonal antibody.

15 16. A method of diagnosing a subject having bladder cancer or determining if a subject is at risk of developing bladder cancer, comprising contacting a sample taken from the subject with an antibody of claim 1, wherein bladder cancer or risk of developing bladder cancer is indicated if the antibody binds to the protein or antigen.

20 17. A method of diagnosing a subject having bladder cancer or determining if a subject is at risk of developing bladder cancer, comprising contacting a sample taken from the subject with an antibody of claim 12, wherein bladder cancer or risk of developing bladder cancer is indicated if the antibody binds to the protein or antigen.

25 18. A method of diagnosing a subject having bladder cancer or determining if a subject is at risk of developing bladder cancer, comprising contacting a sample taken from the subject with an antibody of claim 14, wherein bladder cancer or risk of developing bladder cancer is indicated if the antibody binds to

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the protein or antigen.

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